THE ASTROPHYSICAL JOURNAL

CONTENTS OF VOLUME 357, PART 1

1990 JULY 1, Number 1

	Page	Fiche
EDITORIAL: STYLE CHANGES FOR MOST ASTRONOMICAL JOURNALS ..... *Helmut A. Abt*	1	111-B1
SPECTROSCOPIC LIMITS ON HIGH-REDSHIFT Lyα EMISSION *James D. Lowenthal, Craig J. Hogan, Robert W. Leach, Gary D. Schmidt, and Craig B. Foltz*	3	111-B4
SEARCH FOR COSMOLOGICAL EMISSION LINES: A NEW METHOD *P. de Bernardis, S. Masi, B. Melchiorri, and F. Melchiorri*	8	111-B10
A PRECISE MEASUREMENT OF THE COSMIC BACKGROUND RADIATION AT 1.32 MILLIMETERS *E. Palazzi, N. Mandolesi, Philippe Crane, Marc L. Kutner, J. C. Blades, and Dennis J. Hegyi*	14	111-C3
AN ANALYTICAL APPROACH TO GRAVITATIONAL LENSING BY AN ENSEMBLE OF AXISYMMETRIC LENSES *Man Hoi Lee and David N. Spergel*	23	111-D1
GRAVITATIONAL LENSING BY A SMOOTHLY VARIABLE THREE-DIMENSIONAL MASS DISTRIBUTION *Man Hoi Lee and Bohdan Paczyński*	32	111-D11
HIGH SPATIAL RESOLUTION IMAGING OF 10 3CR GALAXIES WITH $z \geqslant 1$ AND STATISTICAL EVIDENCE FOR SELECTION EFFECTS FROM GRAVITATIONAL AMPLIFICATION ..... *F. Hammer and O. Le Fèvre*	38	111-E4
CLUSTERING PARADIGMS AND MULTIFRACTAL MEASURES *Vicent J. Martínez, Bernard J. T. Jones, Rosa Domínguez-Tenreiro, and Rien van de Weygaert*	50	111-F3
A SIMPLE ANALYTIC MODEL FOR THE EVOLUTION OF CAPTURED GALACTIC DISKS *Thomas Y. Steiman-Cameron and Richard H. Durisen*	62	111-G4
SURFACE PHOTOMETRY OF BARRED SPIRAL GALAXIES ..... *Kouji Ohta, Masaru Hamabe, and Ken-ichi Wakamatsu*	71	112-A2
SPATIALLY RESOLVED NEAR-INFRARED SPECTROSCOPY OF NGC 6240 ..... *Richard Elston and Philip Maloney*	91	112-B11
A NEW STARBURST MODEL APPLIED TO THE CLUMPY IRREGULAR GALAXY MARKARIAN 325 *J. J. Condon and Q. F. Yin*	97	112-C4
ON THE ORIGIN OF METAL HOMOGENEITIES IN GLOBULAR CLUSTERS ..... *Stephen D. Murray and Douglas N. C. Lin*	105	112-D1
INTERSTELLAR EXTINCTION AND POLARIZATION IN THE INFRARED ..... *P. G. Martin and D. C. B. Whittet*	113	112-D10
A COMPARISON OF CLOUD FORMATION RATES IN THE GRAVITATIONAL INSTABILITY AND RANDOM COLLISIONAL BUILDUP MODELS ..... *Bruce G. Elmegreen*	125	112-E10
THE FAR-INFRARED POLARIZATION OF THE ORION NEBULA *D. P. Gonatas, G. A. Engargiola, R. H. Hildebrand, S. R. Platt, X. D. Wu, J. A. Davidson, G. Novak, D. K. Aitken, and C. Smith*	132	112-F4
A SEARCH FOR FAST-MOVING FEATURES IN THE OPTICAL REMNANT OF 3C 58 ..... *Sidney van den Bergh*	138	112-F12
THE EVOLUTIONARY SEQUENCE OF PLANETARY NEBULAE ..... *M. A. Dopita and S. J. Meatheringham*	140	112-G3
PHYSICAL PROCESSES IN PHOTON-STARVED NONTHERMAL PAIR PLASMAS *Andrzej A. Zdziarski, Paolo S. Coppi, and Don Q. Lamb*	149	113-A1
GAMMA-RAY BURSTS FROM MAGNETOSPHERIC PLASMA OSCILLATIONS. II. MODEL SPECTRA ..... *Fulvio Melia*	161	113-B1
STELLAR EVOLUTION WITH ARBITRARY ROTATION LAWS. I. MATHEMATICAL TECHNIQUES AND TEST CASES *Robert G. Deupree*	175	113-C3

CONTENTS

	Page	Fiche
CHEMICAL COMPOSITIONS OF FOUR HIGH-LATITUDE A–F SUPERGIANTS *R. Earle Luck, Howard E. Bond, and David L. Lambert*	188	113-D3
AN OBSERVATIONAL LIMIT TO THE EVOLUTIONARY TIME SCALE OF THE 13,000 K WHITE DWARF G117-B15A *S. O. Kepler, G. Vauclair, N. Dolez, M. Chevreton, M. A. Barstow, R. E. Nather, D. E. Winget, J. L. Provencal, J. C. Clemens, and G. Fontaine*	204	113-E7
ELECTRON-POSITRON HEATING AND THE ECLIPSING MILLISECOND PULSAR PSR 1957 + 20 *Julian H. Krolik and Mark W. Sincell*	208	113-F1
THE INFRARED EXCESS OF G29-38: A BROWN DWARF OR DUST? *James R. Graham, K. Matthews, G. Neugebauer, and B. T. Soifer*	216	113-F10
DISCOVERY OF FIVE PRE-MAIN-SEQUENCE BINARIES IN TAURUS *W. P. Chen, M. Simon, A. J. Longmore, R. R. Howell, and J. A. Bensen*	224	113-G5
DETECTION OF AN OPTICAL JET FROM RX PUPPIS ..... *Francesco Paresce*	231	114-A1
A SEARCH FOR CHAOTIC BEHAVIOR IN THE LIGHT CURVES OF THREE LONG-PERIOD VARIABLES *John K. Cannizzo, D. A. Goodings, and Janet A. Mattei*	235	114-A6
AN EQUATION FOR THE EVOLUTION OF SOLAR AND STELLAR FLARE LOOPS *George H. Fisher and Suzanne L. Hawley*	243	114-B1
ENERGETIC PARTICLE ABUNDANCES IN SOLAR ELECTRON EVENTS *D. V. Reames, H. V. Cane, and T. T. von Rosenvinge*	259	114-C6
SOLAR ROTATION AND THE SUNSPOT CYCLE ..... *David H. Hathaway and Robert M. Wilson*	271	114-D6
ELECTRON BEAM DIAGNOSTICS IN RADIATION FROM H- AND He-LIKE IONS IN SOLAR FLARES ..... *J. M. Laming*	275	114-D11
ON CARBON MONOXIDE COOLING IN THE SOLAR ATMOSPHERE *Pablo J. Mauas, Eugene H. Avrett, and Rudolf Loeser*	279	114-E3
A QUANTUM CHEMICAL STUDY ON THE LINEAR C_2S AND C_3S MOLECULES ..... *Akinori Maurakami*	288	114-F1
ERRATA		
Continuum Energy Distributions of Quasars: Shapes and Origins *D. B. Sanders, E. S. Phinney, G. Neugebauer, B. T. Soifer, and K. Matthews*	291	114-F6
Hot Degenerates in the MCT Survey. I. MCT 0130–1937, a New, Color-selected PG 1159 Object *S. Demers, F. Wesemael, M. J. Irwin, G. Fontaine, R. Lamontagne, S. O. Kepler, and J. B. Holberg*	291	114-F6
INSTRUCTIONS TO AUTHORS	i	114-F8

1990 JULY 10, Number 2

THE EVOLUTION OF NETWORKS OF DOMAIN WALLS AND COSMIC STRINGS *Barbara S. Ryden, William H. Press, and David N. Spergel*	293	116-C1
THE ABSOLUTE TEMPERATURE OF THE SKY AND THE TEMPERATURE OF THE COSMIC BACKGROUND RADIATION AT 600 MHz ..... *G. Sironi, M. Limon, G. Marcellino, G. Bonelli, M. Bersanelli, G. Conti, and K. Reif*	301	116-C11
MACRO- AND MICROMODELS FOR GRAVITATIONAL LENSES ..... *Rainer Kayser*	309	116-D7
INTERMEDIATE-REDSHIFT GALAXY HALOS: RESULTS FROM QSO ABSORPTION LINES *Kenneth M. Lanzetta and David Bowen*	321	116-E7
STATISTICAL AND PHYSICAL EVOLUTION OF QUASI-STELLAR OBJECTS ..... *David Caditz and Vahé Petrosian*	326	116-F1
A STUDY OF THE BALDWIN EFFECT IN THE *IUE* DATA SET ..... *A. L. Kinney, A. R. Rivolo, and A. P. Koratkar*	338	116-G1
NEW RESULTS ON QUASAR EMISSION-LINE REDSHIFT DIFFERENCES ..... *Michael R. Corbin*	346	116-G11
RESONANT EXCITATION OF INTERNAL GRAVITY WAVES IN CLUSTER COOLING FLOWS *Steven A. Balbus and Noam Soker*	353	117-A5
COLLISIONAL REMOVAL OF H I FROM THE INNER DISKS OF VIRGO CLUSTER GALAXIES *Monica Valluri and Chanda J. Jog*	367	117-B7
ROTATION MEASURE VARIATIONS ACROSS THE LOBES OF EXTRAGALACTIC RADIO SOURCES *G. V. Bicknell, R. A. Cameron, and R. A. Gingold*	373	117-C1

CONTENTS

	Page	Fiche
IDENTIFYING GALAXIES IN THE ZONE OF AVOIDANCE — *N. Y. Lu, M. W. Dow, J. R. Houck, E. E. Salpeter, and B. M. Lewis*	388	117-D7
PECULIAR VELOCITY OF THE LOCAL GROUP FROM NEARBY REDSHIFT SURVEYS — *Paulo S. Pellergrini and L. Nicolaci da Costa*	408	117-F3
PHOTOMETRY AND GAS KINEMATICS OF THE SPIRAL GALAXY NGC 1566 ..... *W. D. Pence, K. Taylor, and P. Atherton*	415	117-F11
EXTENDED NEUTRAL HYDROGEN EMISSION IN THE NGC 5903/5898 BINARY ELLIPTICAL SYSTEM: EVIDENCE FOR A DOUBLE-GALAXY ACCRETION EVENT ..... *P. N. Appleton, A. Pedlar, and A. Wilkinson*	426	117-G9
KINEMATIC MODELING OF THE GALAXY. II. TWO SAMPLES OF HIGH PROPER MOTION STARS — *Stefano Casertano, Kavan U. Ratnatunga, and John N. Bahcall*	435	118-A7
GALACTIC BULGE M GIANTS. III. NEAR-INFRARED SPECTRA AND IMPLICATIONS FOR THE STELLAR CONTENT OF E AND S0 GALAXIES ..... *D. M. Terndrup, Jay A. Frogel, and A. E. Whitford*	453	118-C1
$^{12}C/^{13}C$ ISOTOPE RATIO ACROSS THE GALAXY FROM OBSERVATIONS OF $^{13}C^{18}O$ IN MOLECULAR CLOUDS — *William D. Langer and Arno A. Penzias*	477	118-E1
BINARY PERIODS OF CLUSTER PULSARS ..... *Roger W. Romani*	493	118-F5
GETTING TO THE BOTTOM OF THE LAGOON: DUST, MAGNETISM, AND STAR FORMATION — *Marshall L. McCall, Michael G. Richer, and N. Visvanathan*	502	118-G1
IONIZATION IN NEARBY INTERSTELLAR GAS ..... *P. C. Frisch, D. E. Welty, D. G. York, and J. R. Fowler*	514	119-A5
THE UNUSUAL MORPHOLOGY OF THE HIGH-VELOCITY GAS IN L723: ONE OUTFLOW OR TWO? — *L. W. Avery, S. S. Hayashi, and Glenn J. White*	524	119-B1
THE ^{13}CO–A_V RELATION AT HIGH EXTINCTIONS: THE ρ OPHIUCHI COMPLEX .... *Robert L. Dickman and William Herbst*	531	119-B11
INFRARED AND OPTICAL IMAGERY OF THE CRAB NEBULA — *J. Jeff Hester, James R. Graham, Charles A. Beichman, and T. N. Gautier III*	539	119-C7
ULTRAVIOLET Fe VII ABSORPTION LINES IN PLANETARY NEBULA NUCLEI, HOT SUBDWARFS, AND HOT DEGENERATE OBJECTS ..... *Walter A. Feibelman and Frederick C. Bruhweiler*	548	119-D9
ANALYTICAL AND NUMERICAL VALUES OF EMDEN-CHANDRASEKHAR ASSOCIATED FUNCTIONS ..... *G. P. Horedt*	560	119-E9
THERMAL RELAXATION OSCILLATIONS IN HORIZONTAL-BRANCH STARS — *Pierre Salati, Georg Raffelt, and David Dearborn*	566	119-F1
A NEW THEORETICAL CALIBRATION OF THE RELATION BETWEEN MASS-LOSS RATE AND Hα EMISSION FOR O STAR WINDS ..... *J. E. Drew*	573	119-F9
ARC-SHAPED CYCLOTRON EMISSION REGIONS IN AM HERCULIS SYSTEMS ..... *Lilia Ferrario and D. T. Wickramasinghe*	582	119-G5
BIPOLAR SUPERNOVA REMNANTS AND THE OBLIQUITY DEPENDENCE OF SHOCK ACCELERATION — *Michael S. Fulbright and Stephen P. Reynolds*	591	120-A3
A SEARCH FOR T TAURI STARS IN HIGH-LATITUDE MOLECULAR CLOUDS. I. *IRAS* SOURCES AND CCD IMAGING — *Loris Magnani, Jean-Pierre Caillault, and Lee Armus*	602	120-B1
SUBMILLIMETER PHOTOMETRY AND DISK MASSES OF T TAURI DISK SYSTEMS — *Fred C. Adams, James P. Emerson, and Gary A. Fuller*	606	120-B5
DETECTION OF THE SECONDARY STAR IN HT CASSIOPEIAE ..... *T. R. Marsh*	621	120-C7
WHOLE EARTH TELESCOPE OBSERVATIONS OF THE WHITE DWARF G29-38: PHASE VARIATIONS OF THE 615 SECOND PERIOD — *D. E. Winget, R. E. Nather, J. C. Clemens, J. Provencal, S. J. Kleinman, P. A. Bradley, M. A. Wood, C. F. Claver, E. L. Robinson, A. D. Grauer, B. P. Hine, G. Fontaine, N. Achilleos, T. M. K. Marar, S. Seetha, B. N. Ashoka, D. O'Donoghue, B. Warner, D. W. Kurtz, P. Martinez, G. Vauclair, M. Chevreton, A. Kanaan, S. O. Kepler, T. Augusteijn, J. van Paradijs, C. J. Hansen, and James Liebert*	630	120-D3
THE GAMMA-RAY LIGHT CURVES OF SN 1987A ..... *Mark D. Leising and Gerald H. Share*	638	120-E1
NEUTRON CAPTURE BY ^{12}C AT STELLAR TEMPERATURES ..... *R. L. Macklin*	649	120-F1
NONLINEAR DEVELOPMENT OF THE KINK INSTABILITY IN CORONAL FLUX TUBES ..... *I. J. D. Craig and A. D. Sneyd*	653	120-F5
MULTIPLE-WAVELENGTH ANALYSIS OF ENERGY RELEASE DURING A SOLAR FLARE: THERMAL AND NONTHERMAL ELECTRON POPULATIONS — *Robert F. Willson, Karl-Ludwig Klein, Alain Kerdraon, Kenneth R. Lang, and Gerard Trottet*	662	120-G1
INDEX TO VOLUME 357, PARTS 1 AND 2	*See Part 2*	